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CLAIMS

1. A fluorescence correlation spectroscopy module to be arrayed at an optical connection (2) of a microscope (3) with a connection (5) to the coupling of the stimulating light and of a pinhole array (10), wherein the coupling connection and the pinhole array are set on a common support body (4).

2. The module according to claim 1, characterized in that the optical connection (2) of the microscope is an optical inlet and/or outlet.

3. The module according to claim 1 or 2, characterized in that a collimator (8) for generating a parallel light beam is arrayed at the support body (4) in the beam path after the coupling connection (5).

4. The module according to claim 3, characterized in that an adjustable lens array (9) for focusing the beam path confocally with the pinhole is provided in the beam path after the collimator (8) at the support body (4).

5. The module according to one of the claims 1 to 4, characterized in that a filter array (12) and a dichroic beam splitter (13) are arrayed in the beam path before the stimulating light is coupled into the microscope (3).

6. The module according to claim 5, characterized in that the filter array (12) and the beam splitter (13) are set on a common receptacle holder (15) that can be inserted removably in the support body (4).

7. The module according to claims 1 through 6, characterized in that at least one optical unit (14) with one dichroic beam splitter (16) and/or one mirror (20) is provided in the beam path behind the pinhole (10).

8. The module according to claim 7, characterized in that the at least one optical unit (14) is arrayed on a receptacle holder (15) that can be inserted removably in the support body (4).

9. The module according to claim 7 or 8, characterized in that a filter (17, 22) for selecting the detection wavelengths is provided on the optical unit (14).

10. The module according to one of the claims 1 through 9, characterized in that a lens array (19, 23) for focusing the emission light on the detector (18, 21) is provided in the emission beam path before a detector (18, 21).

11. The module according to one of the claims 1 through 10, characterized in that the support body (4) for receiving the receptacle holder (15) is provided with shaped surfaces (25), to which the receptacle holder (15) provided with complementarily shaped surfaces arrayed on the support body in the beam path can be fixed.

12. The module according to one of the claims 1 through 11, characterized in that the support body (4) is made in one piece from a metallic material and has a connection flange for attaching the support body to the connection (2) of the microscope (3).

13. The module according to one of the claims 1 through 12, characterized in that the support body (4) is made with cavities (24) for receiving the receptacle holder (15), wherein the said cavities (24) have suitable lateral surfaces (25) designed to accomodate the oriented reception of the receptacle holder.

14. The module according to one of the claims 1 through 13, characterized in that the receptacle holders are provided with at least two frequency-selective filter devices (26, 28).

~~15. The module according to one of the claims 1 through 4, characterized in that the laser light used as stimulating light is coupled in through a single mode fiber optical waveguide.~~

~~16. The module according to one of the claims 3 through 15, characterized in that the collimator (8) is tuned to the numerical aperture of the fiber optical waveguide.~~

17. The module according to one of the claims 14 through 16, characterized in that it is possible to choose different spectrum ranges of the stimulating and/or emission wavelengths using the frequency-selective filter devices (26, 28).

18. A microscope with a fluorescence correlation spectroscopy module according to one of the above claims. B

19. An application of the fluorescence correlation spectroscopy module according to one of the claims 1 through 17 or 18 for determining diffusion coefficients.

20. The application according to claim 19 for determining rotation diffusion coefficients.

21. An application of the fluorescence correlation spectroscopy module according to one of the claims 1 through 17 or 18 with at least two optical units for cross-correlating the signals of the different fluorescence emission spectra frequency selected by the at least two optical units.

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